Knowledge Management Systems for Decision Makers in Public Universities Malaysia

Ruzaif Adli Md. Daud[a] and Shahizan Hassan[b]

[a] *Faculty of Information Management,*
University Teknologi MARA, 40450 Shah Alam, Selangor Darul Ehsan
Email: ruzaif_adli@yahoo.com

[b] *Faculty of Information Technology*
University Utara Malaysia, 06010 Sintok, Kedah Darul Aman
Tel: 04-9285190
Email: shahizan@uum.edu.my

ABSTRACT

Knowledge is identified as the crucial asset of an organization especially in the Higher Learning Institutions (HLI) and universities. These institutions are recognized in the knowledge business due to their involvement in the knowledge creation and dissemination processes. The implementation of Knowledge Management Systems (KMS) for decisions makers in Public Universities in Malaysia (PUM) is inevitably challenging. Most PUM are not structured for the application of KMS and do not have a unified implementation model in place. Therefore, the main objective of this research is to develop a KMS implementation model for decision makers in PUM. To achieve the objectives of this study the triangulation method was used. This paper also includes a brief description on research population, validation, data analysis and KMS implementation model for decision makers in PUM.

Keywords

Public Universities Malaysia (PUM), Public Universities (PU), Knowledge Management (KM), Knowledge Management Systems (KMS), Knowledge resources, KMS implementation.

1.0 INTRODUCTION

According to Hijazi and Kelly (2003), HLI is always depicted as knowledge-based organization where the role and function of this institution is based on the knowledge agenda. Most of HLI have already employed IT to support various activities from administrative jobs to teaching. These activities are part of KM processes that are facilitated by IT which could be referred to Knowledge Management Systems (KMS). Furthermore, an effective KMS should contribute in creating an environment in which the organization and its people can be successful through providing systems, tools and techniques for managing knowledge, without imposing new demands or intruding into day-to-day tasks in the organization. Initially, there is no specific model or standard that can be considered as a tool for a successful implementation of KMS (Kidwell, Vander Linde & Johnson 2000). However, the success of the KMS implementation in HLI basically requires a unified implementation model, a well plan implementation strategy and the understanding of the KM concepts as a whole, which are the main focus of this research.

1.1 Problem Statement and Objectives of Study

KM problem is not easily solved by acquiring KMS applications from particular software companies. However it goes beyond the technological solution, which requires a well plan implementation strategy including the complex issues of the abstract definition in the KM concept. The KMS implementation strategies must be aligned with the HLI business strategy, or else the KMS will fail to accomplish goals that are tangible to the organization. KMS implementation strategy approaches basically deals with business domain issues and IS domain issues to capture, store and disseminate organizational knowledge both tacitly and explicitly so that this knowledge can be utilized for specific purposes.

The main focus of this study is the Public Universities in Malaysia considering that the existing seventeen universities are being a center of higher learning to produce knowledge workers and publicly funded organizations under the Government of Malaysia. The Ministry of Higher Education expects the entire higher education sector especially the Public Universities in Malaysia to produce more than 10,000 knowledge workers every year. In the Eighth Malaysian Plan, it is stated that the Malaysian Government is spending more then RM 3 billion annually in order to be competitive in the knowledge economy. The cost includes university facilities, appropriate program, and staff training. Furthermore, in the new millennium, the concern of the Government of Malaysia in developing the nation through the knowledge economy has become very apparent. Government organisations including the Public Universities are urged to develop a more knowledgeable organisation, especially in terms of managing knowledge resources and providing services to the public.The

discussion indicates that KM is a new field in HLI and relatively in Public Universities in Malaysia. Therefore, the central objective of this research is to develop a KMS implementation model for decision makers in Public Universities in Malaysia and to address the following research questions:

1. What are the knowledge resources that need to be managed by the decision makers?

Knowledge resources that need to be managed by the decision makers in PU can take various forms generally. For instance they include knowledge embedded or carried out in Business plans, business processes, policies and procedures, day-to-day decisions, e-mail messages, financial statements, human participants, interactions among peoples, manuals, meeting minutes, memo, organizational structure, processes, products and services and reports. However for PUM it will be different slightly in terms of terminologies used for its knowledge resources. Moreover, knowledge resources can have various attributes. For example typologies include tacit versus explicit (Nonaka, 1994), procedural versus reasoning versus descriptive (Holsapple, 1995) and degree of detail (Wiig, 1993). Various authors tend to focus on different attributes of these resources; or on one another type of knowledge resource. This research effort will concisely characterize a set of knowledge resources that need to be managed in a more complete and unified manner.

2. How do the decision makers manipulate knowledge in order to make decisions?

KM in broad terms refers to the representation and processing of knowledge (Holsapple, 1995). A literature review reveals many activities for processing knowledge including the following: Accessing, Analysing, Applying, Capturing, Constructing, Controlling, Creating Developing, Disseminating, Distributing, Identifying, Implementing, Interpreting Locating, Maintaining, Modifying, Organizing, Processing, Refining, Retaining, Retrieving, Sharing, Storing, Synthesising, Transferring and Using. (Myers, 1996; Davenport & Prusak, 1998). In order to develop a KMS implementation model, it is essential to organize and consolidate such knowledge manipulation activities in a way that identifies their interrelationships.

1.2 Scope and Limitations

This research focuses on the existing seventeen PUM and assumes that PUM's knowledge grows over time. A PU may not be aware of it, may not be making best use of it, or may not be managing well in order to enhance those activities that lead to efficient and effective knowledge growth and utilization of KMS. Therefore, the focus is not on how and why a PU "knows", or ways of "knowing", but rather on developing a KMS implementation model that allows PU to have a unified KMS.

2.0 KM FRAMEWORKS

Currently there are a few KM model and frameworks, but none provides comprehensive view of KM. Each focuses on only certain aspects of KM and describes the principal elements of KM and their interrelationships. For the purpose of the research only three existing frameworks will be discussed that is, Knowledge Management Pillars Framework (Wiig's, 1993), The Knowing Organisation Framework (Choo, 1996) and Knowledge Conversions Framework (Nonaka, 1994). These frameworks are the most often and widely used in the literature and they lay a foundation on which KM theories and concepts were developed.

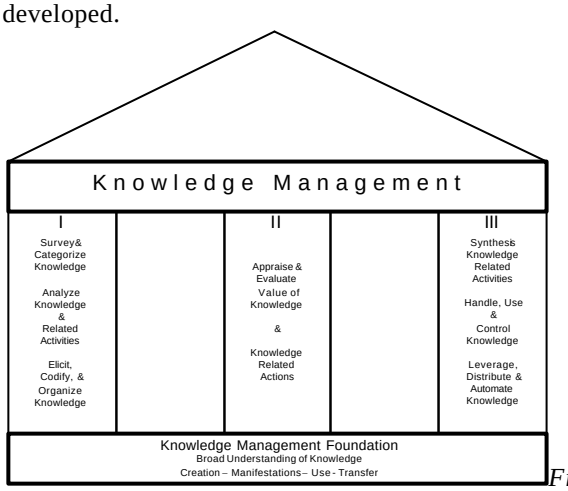

Figure 1: Knowledge Management Pillars Framework (Wiig's, 1993)

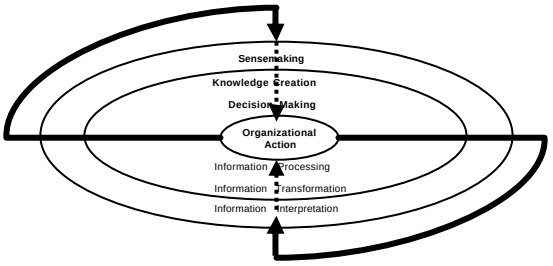

Figure 2: The Knowing Organisation Framework (Choo, 1996)

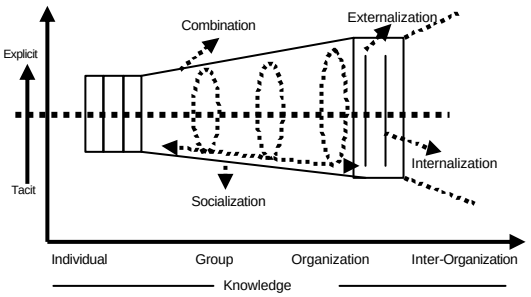

Figure 3: Knowledge Conversions Framework (Nonaka, 1994)

The literature of the existing KM frameworks reveals that such frameworks are being approached from a variety of

perspectives and with a variety of methodologies. Each, in its own way, contributes to an understanding of theories and concepts of KM. The frameworks described here can serve as a starting point for creating a generic framework that unifies KM theories and concepts. Wiig's (1993) framework takes the form of three pillars. Each represents a combination of KM influences and knowledge manipulation activities. It recognizes the impacts of three classes of managerial influences on the conduct of KM: control, coordination, and measurement. It covers the notion of control through explicit inclusion of an element called controlling knowledge, plus the elements of surveying and categorizing. Wiig's framework also contains the elements of knowledge manipulation activities and leveraging knowledge.

Furthermore, this framework recognizes the role of analyzing, appraising, and evaluating the value of knowledge and knowledge related activities. These elements are concerned with measurement of the understanding of KM. Some elements in the framework are related to the generic knowledge manipulation activities. It also partially covers internalization activity by its elements that codify and organize knowledge. Codifying and organizing knowledge are aspects of the generic framework's sub-activity, which occurs during internalization. Wiig's elements of creating, using, and manifesting knowledge are covered by the generic framework's concept of using knowledge which include generation and externalization activities. Finally the Wiig's also alludes to the notion of automating knowledge, thus acknowledging the existence of computer participants' knowledge as resource.

Choo's (1996) framework neither acknowledges nor characterizes knowledge resources or KM influences. Its knowledge processing activities of transformation, interpretation, and creation seem to be at an elemental level, sensemaking and decision making are at higher level, and information processing does seem to be an independent activity which occurs at all levels of knowledge processing. Transformation and creation are included in the generic framework's knowledge generation activity. Interpretation, which is defined as focusing on interpreting an organization's external environment, is part of the generic framework's acquisition activity. The processing activities in this model do not cover the full scope of knowledge manipulation.

Nonaka's (1995) framework does not comment on KM influences, nor does it characterize the nature of knowledge resources. This framework focuses narrowly on creation and transferal of knowledge through conversions of tacit and explicit knowledge among human participants. It is concerned with characterizing knowledge conversions on tacit versus explicit knowledge attribute dimension. These conversions happen through exchange and dissemination of knowledge among individuals, groups, organizational units, and inter-organization. Nonaka's concept of socialization corresponds the existence of knowledge flows among activities in the generic framework. However, these knowledge flows are confined to exchanges among human participants. Nonaka's concept of externalization and internalization correspond to interplay of the generic frameworks selection and internalization activities, in which knowledge selection from human knowledge sources occurs and then internalization into a human recipient takes place.

3.0 KMS IN PUBLIC UNIVERSITIES

While there are many different approaches to KM, their objectives are the same: to more effectively manage and use both tacit and explicit knowledge in an organization. To add value to KM there is a need for KMS, which facilitate the generation, preservation, and sharing of knowledge. Realizing the importance of knowledge as an organizational asset that enables sustainable competitive advantage, many universities are developing KMS designed especially to facilitate the sharing and integration of knowledge, thus making a distinction between data and information (Bolloju *et al*., 2002). Like KM, a KMS has also been defined in a number of ways. Alavi and Leidner, (1999) defined KMS as a broad way or approach to deal with the generation, preservation, and sharing of both tacit and explicit knowledge within and outside of the organization, which essentially involves the applications of Information Technology systems and other organizational resources. Designing the KM strategy for the university would be the first step towards the implementing the KMS. This KMS would never be successful until a proper goal is set and then a strategy is designed accordingly. For a successful KMS, the implementation strategy is required for:

- Devising and managing an implementation plan
- Administering a common vision
- Defining knowledge requirements
- Based on the feedback further refine the strategy

Kamara, Anumba and Carrillo (2002), have suggested that when deciding upon a strategy for implementing Knowledge Management in any organization, then a basic framework should be followed for the selection of an appropriate strategy. The stages of the framework are shown in figure 4:

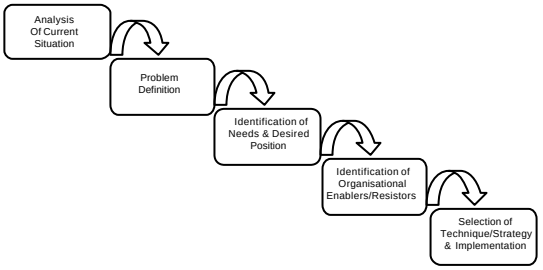

Figure 4: KM Implementation Strategy

4.0 METHODOLOGY

To achieve the objectives of this study, the researcher adopted the triangulation method. This method includes both qualitative and quantitative techniques for collecting data. Patton (1990) mentioned that triangulation, or the combination of methodologies strengthened a research design. Qualitative and quantitative research provides complementary types of information. In this study, a survey research and a case study method was adopted to fulfill the research objectives. Only the survey findings were disclosed in this paper due to KMS implementation model prototype is still under construction and to be tested as a case study later.

4.1 Population

The target population for this study was the managerial personnel from the universities who are involved with decision-making and Information Technology/ Information Systems Manager in the seventeen (17) PUM comprising of 185 faculties and 222 Centres/ Institutes /Units. The respondents name list was obtained from the University's homepage. Universiti Malaysia Kelantan (UMK), Universiti Darul Iman Malaysia (UDIM) and Universiti Pertahanan Nasional Malaysia (UPNM): these three new universities were not included as participants since their establishments were not within the researcher field work time frame.

4.2 The Questionnaire

In gathering information pertaining to the research, a questionnaire was developed as the main instrument for data collection based on the research questions and the literature review. To give respondents a consistent understanding of what knowledge management is, the definition of knowledge, knowledge management and knowledge management systems was included in the questionnaire. To ensure full coverage of potential respondents, a current list of employees' names obtained from the University's Homepage was used as a guide when distributing the questionnaire. These are to ensure that all decision makers from the Head of Department (HOD) post and above in the Universities are fully covered. The population was established by accessing the university's website, which resulted in a figure of 1,584 respondents.. The questionnaire was pilot tested on 20 Head of Departments and changes were made based on their comments and suggestions. The returned questionnaires were checked for completeness. The data was analyzed by using SPPS 12.0.1 for descriptive statistics. Respondents were asked to apply the following KM and KMS definitions in the questionnaire:

KM

The systematic and organised attempt to use knowledge within the university to make decisions, to provide services to the customers and to improve performance.

KMS

A Knowledge Management Systems (KMS) is a broad way of approach to deal with the generation, preservation, and sharing of both tacit and explicit knowledge within and outside of the organization, which essentially involves the applications of Information Technology systems and other organizational resources. (Alavi & Leidner, 1999, p.21).

A total of 934 questionnaires were collected from 1,584 respondents significantly disclosed the return rate of 59%.

4.3 The Interview

The structured interview was conducted as to support and act as supplementary information gathered in the questionnaire. Although the aim of this research was clear, but in IS/IT discipline the questions ask in the interview had to be grounded to the real world as the discipline evolve over time (Myers & Avison, 2002). The participants used in this research consisted of seventeen (17) IT Head of Departments from each of PUM. Of the seventeen (17) respondents invited to participate only seven (7) were agreed to be interviewed by the researcher. The data was analyzed by using ATLAS.ti 5.0 for qualitative analysis.

4.4 Reliability Test

Reliability test is an assessment of the degree of consistency between multiple measurements of a variable. Cronbach's alpha is the most widely used measurement tool with a generally agreed lower limit of 0.7 (Nunnaly, 1978). The reliability test was conducted on the data collected. The Alpha value showed a very high score of 0.9616 value proved that the measurement items used in this study are acceptable.

5.0 FINDINGS

This chapter presents the statistical analysis and findings. The findings are presented in the following tables.

5.1 Profile of Respondents

The demographic are indicative of respondents gender, age, and experience in KM field. Table 1 shows that 65% decision makers were male respondents, with remainder 35% were female respondents. Its shows that the male respondents are still the dominant entity in the university's decision making. In addition, it's also shows that majority of the decision makers age are more than 50 years old (45%). The distribution of the experience levels is shown in Table 2. Half of the respondents (55%) are experiencing 3-6 years in KM field. It shows that KM field is relatively new in PUM.

Table 1: Profile of Respondents

Gender	Percent
Male	65
Female	35
	100
Age (Years)	
30-40	15
41-50	40
More than 50	45
	100

Table.2: Experience in KM field

KM Experience (Years)	Percent
Less than 3	35
3-6	45
7-10	15
More than 10 years	5
	100

5.2 Written KM policy in university

Table.3: Written KM Policy

	Frequency	Percent
No	471	50.4
Yes	206	22.1
Don't know	257	27.5
	934	100

When asked whether the University have a written KM policy, the majority respondents (50.4%) indicate that the university does not have a written KM policy. Only 22.1% of the respondents said that their university has a written KM policy compared to 27.5% who did not know whether their university has any written KM policy. The result indicates that most of the university does not have a written KM policy. However, when the respondents were asked if it is important to have KM in the University, the majority respondents (80.6%) agreed that it is important to have KM as shown in Table 4.

5.3 Important to have KM in university

Table 4: Important to have KM in University

	Frequency	Percent
Yes	753	80.6
No	128	13.7
Don't know	53	5.7
	934	100

5.4 KM Centre

Table 5: KM Centre

	Frequency	Percent
Yes	215	23.0
No	649	69.5
Don't know	70	4.8
	934	100

Most of the respondents (69.5%) indicate that their university does not have a KM centre/unit/department or institution. Only 23% respondents said that their universities have a KM centre and most of them specified the library and Computer Centre as their KM centre.

5.5 Uses of knowledge strategically for sense making, knowledge creation and decision making (knowledge manipulation)

Table 6: Uses of Knowledge Strategically for Sense Making, Knowledge Creation and Decision Making (Knowledge manipulation)

Sense Making	Frequency	Percent
Yes	670	71.8
No	85	9.0
Don' know	179	19.2
Knowledge creation		
Yes	667	71.5
No	62	6.5
Don' know	205	22.0
Decision Making		
Yes	714	76.5
No	73	7.8
Don' know	146	15.7
	934	100

A resounding of 71% respondents indicates that their university used knowledge strategically for sense making and knowledge creation. The highest percentage was 76.5% in decision making. This result shows how important the knowledge was used strategically by respondents in order to make decisions.

5.6 Benefits of managing knowledge

Table 7: Benefits of Managing Knowledge

	Percent
To improve decision making	81.1
To improve quality	76.9
To be up-to-date with new information	76.6
To improve efficiency	75.5
To be more effective	67.5
To respond to customers' need	64.9
To instigate changes	48.7
To respond to other organizations' needs	47.7
* It did not make up 100% because multiple answers were allowed	

Most of the respondents agreed that the University could gain a lot of benefit from managing knowledge. The respondents agree that by managing knowledge, the University could improve decision making (81.1%) work quality (76.9 %), have up-to-date information (76.6 %), improve efficiency (75.5 %), be more effective (67.5 %), and be able to respond to customer needs (64.9 %). The least-rated benefits, in the respondents' opinion, are to respond to other organisations' needs (48.7 %) and to instigate changes (47.7 %).

5.7 Knowledge resources that encourage knowledge generation and knowledge sharing in university

Table 8: Mean Scores of Knowledge Resources

	*Mean
ISO 9001	3.69
Desk file	3.61
Filing system	3.60
Current policies and procedures	3.59
Job manual procedure	3.32
Workflow	3.18
Unwritten policies	3.01
* 1- no potential 3-potential 5-most potential	

The most potential knowledge resources that encourage knowledge generation and knowledge sharing in university were ISO 9001 with mean rating of 3.69. The next potential was the desk file with mean rating of 3.61. Other potential knowledge resources were filing systems, current policies and procedures, job manual procedures and workflow. The knowledge resources with the least potential were unwritten policies with a mean rating of 3.01.

5.8 Technologies Use to Develop and Gain Knowledge

Table 9: Mean Scores of Technologies Use to Develop and Gain Knowledge

Technologies	*Mean
Internet	4.40
Online information sources	4.20
Email	4.28
Intranet	4.12
Document/File Management	3.87
Data warehouse	3.76
Groupware	3.72
CD-ROMS	3.47
Video conferencing	3.10
* 1- no potential 3-potential 5-most potential	

All respondents agreed that the Internet had contributed the most to develop and gain knowledge with mean rating of 4.40. The next potential technologies used to develop and gain knowledge were online information sources, email, intranet, document/file management, data warehouse, groupware, CD-ROMs and video conferencing.

5.9 University KMS

The mean scores of university KMS are presented in Table 10, arranged in descending order.

Table10: Mean Scores of University KMS

My University's KMS	*Mean
Enhances my effectiveness on the job.	4.94
Increases my productivity.	4.91
Makes it easier for me to do my job.	4.89
Allows more work to get done in the organization.	4.86
Speeds decision making.	4.83
Saves my time.	4.80
Improves my job performance.	4.79
Enables me to accomplish tasks more quickly.	4.71
Enables the organization to react more quickly to changes in the marketplace.	4.69
Facilitates knowledge application.	4.64
Facilitates knowledge transfer.	4.61
Facilitates knowledge storage/retrieval	4.60
Facilitates knowledge creation.	4.54
Is not useful in my job overall	2.33
* 1- strongly disagree 3-neutral 5-strongly agree	

5.10 Important of KMS Implementation model

How important is it to have a unified KMS implementation model for the university?

Table 11 shows the respondent's comments on the above interview question.

Table11: Respondents' Comments on the Important to have a Unified KMS Implementation Model

The implementation model is important for the practical and theoretical structure it can provide. It can provide a context for all work in the field.
An implementation model helps people understand what KM and KMS is, what knowledge activities are involved and how the knowledge activities affect organizational effectiveness.
This implementation model gives academicians and practitioners a common set of well-defined constructs for researchers and practice in KM and KMS
An implementation model can help place people's effort in a bigger perspective. It can also help both practitioners and researchers have a way to identify if they have covered all the appropriate issues pertaining to their situation
Much confusion exists surrounding the notion of knowledge management. Most of this is based on a lack of clarity with respect to the definition and domain of KM and KMS. A model is needed that defines the boundary of KM as well as its components
We tend to create tacit frameworks, so an explicit one helps in reflection and communication in a wider circle
1) Determines scope of action 2) Acts as visual support to aid communications 3) Can be a resource allocation tool.
It matters not that model/framework or architecture you use, but having one enables systematic

knowledge identification and leverage

In conclusion, the respondents agreed that it is important to have a unified KMS implementation model in place for PUM for a holistic view of KM and KMS, helps practitioners and researchers understand and study KM and KMS in an organized method.

5.11 Critical Success Factors (CSF) of KMS Implementation in PUM

Table 12 shows respondent's comments on the following interview question: *What are the critical success factors (CSF) of KMS implementation in the university?*

Table12: Respondents' Comments on the CSF of KMS implementation

1. Leadership The respondents believed that the expression of positive leadership characteristics at various levels of management is a vital aspect for developing knowledge culture in university. These attributes include, empowering subordinates, allocation of resources, openness towards change and experimentation, developing trust, tolerance to mistakes and building long-term perspective of the organizational goals among employees. They have emphasized that empowering employees with certain autonomy in task achievement and learning, can provide agility to the organizations knowledge culture.
2. Organizational structure The respondents viewed that the university conventional organizational structures need to be transformed to support the development of a knowledge culture. Previous studies in his area have proposed the creation of several exclusive KM jobs, which include, chief knowledge officer (CKO), knowledge managers, portal managers, content managers and knowledge analysts (Davenport and Prusak, 2000; Gordon, 2002; Gray, 1998; Rastogi, 2000; Rumizen, 2002; Skyrme, 1999). This study confirms the view that some specialist positions such as KM analysts and coordinators are necessary for developing knowledge culture. People with expertise in the areas of strategic management, process analysis and reengineering, change management, content development, human resource management and knowledge portal development, are considered crucial in instituting a knowledge culture at the university.
3. ICT Infrastructure The respondents viewed that it is fundamental to establish the information and communication infrastructure to facilitate the knowledge culture. Knowledge portals, in the form of intranets and extranets, are the most common type of infrastructure observed in the universities explored in this study. Other recent studies (Detlor, 2004; Gottschalk & Khandelwal, 2004) have also found that knowledge portals play an important role in KM. All of the organizations explored in this study, have been making considerable investments in an array of technologies for providing KM infrastructure. The observed technology components include groupware, search engines, virtual conferencing tools, and data mining technologies, content management systems, decision support systems and artificial intelligence (AI) tools. These technologies were integrated into knowledge portals to provide a single gateway for accessing the organizational knowledge base. They also asserted that the infrastructure is central for virtual communities and an essential part of all KM programs, making it a crucial factor for developing knowledge culture.
4. Business processes This study demonstrates that the effective management of business processes is an important building block for developing sustainable knowledge management culture. The respondents asserted that it is essential to integrate KM activities with the core business processes to enable seamless flow of knowledge in the day-to-day business life.
5. Communities of practice Lave and Wenger (1991) coined and described the term, communities of practice (CoPs) as, ''an activity system that includes individuals who are united in action and in the meaning of action has for them and for a larger collective''. The majority of the interviewees believed that the communities of practice have strengthened the knowledge culture in their organizations. The respondents suggested that encouraging the development of CoPs is an effective way to launch knowledge management programs.
6. Reward systems The findings of this study confirm a general view in KM literature (APQC, 2002; Davenport and Prusak, 2000; Gupta and Govindarajan, 2000), that organizational rewards motivate employees towards knowledge sharing and foster a knowledge management culture. The respondents suggested that the indirect rewards such as appreciation and recognition play a greater role than the monetary incentives.

5.12 KMS Implementation model

The KMS Implementation Model as shown in figure 5 is originated from Babita (2000) and the three-fold existing KM frameworks by Wiig, Choo and Nonaka. The knowledge capture is a process converting tacit knowledge (e.g. what one learned at workshop) into explicit knowledge (e.g. written report) in organization. Knowledge capture is one of the parts in corporate knowledge and knowledge can be captured inside and outside the organization. From this statement, we concluded that any organization must capture internal and external knowledge to remain competitive. After that knowledge succeeded to capture, they will be integrated within one system in organization as a resources.

The second step in the proposed model is the knowledge classification. Once the captured knowledge becomes as resources to the organization the knowledge must be classified. This is proved by Wally (2000), that knowledge is classified and modified. The classification can be the addition of indexing keywords. Whereas

modification can add context, background or other things that make it easier to re-use later. The test of this step is how easily people in the organization will be able to find and use the knowledge when they need it. The classification of the knowledge could be considered as corporate knowledge as well involved in process of knowledge creation. It is process how organization gathers internal and external information in one system. Internal information refer to information can be gained from workers in organization. Whereas external information refer to information can be gained from outside organization.

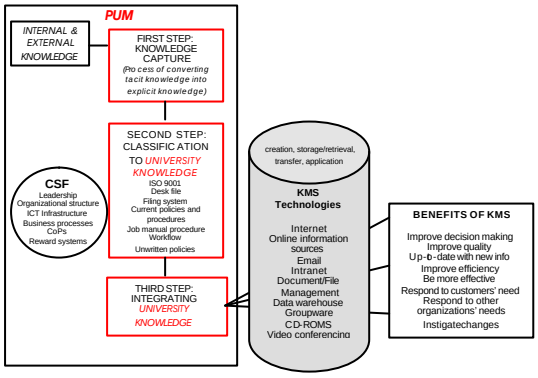

Figure 5: KMS Implementation Model

The third step of this proposed model is the integration of corporate knowledge using KM tools to win competitive advantage and, to cope with environmental changes both within and outside the organization , to solve existing problem as well as to innovate for business expansion as proposed by Jon-Chao Hong (1999) that the purpose of knowledge management is to integrate internal and external knowledge at all time in order to cope with environmental changes both within and outside the organization , to solve existing problem as well as to innovate for business expansion. Competitive advantage organization is organization able to compete with their rival and know whatever situation requirement. They also know to place themselves in market. Knowledge management provides competitive advantage to organization if they how to exploit it effectively. According to modern approaches, knowledge management is already considered as a key factor in the organization's performance, because it deals with different resources that can aid decision makers in many ways (Keen 1991).

6.0 DISCUSSION AND CONCLUSION

Managing knowledge systems is one of the key areas of research of the current age. Efficient management of Information and Knowledge is considered as one of the key success factors for the organizations. In order to be able to apply knowledge management technologies, public universities in Malaysia should first become ready to do so. This means reengineering of organization and exploring how technology can be put to work. It also means considering potential bottlenecks. Bottlenecks related to the application of KMS in the university environment are likely of a cognitive nature: information overload, technical, and logistic complexity, the necessity to overview distributed processes and so on. As all over the world universities are expanding their services globally and are becoming networked organizations, therefore there is a need to further research in this area to find out how networked universities can be made more effective and flexible in terms of the services they provide, by effectively managing their knowledge assets. The literature concludes that KMS can be implemented successfully in public universities. The need is to convert the traditional teaching university into a learning university. In conclusion this research is to stimulate further study on KM and KMS in PUM, including perhaps the introduction of newer KMS implementation model for PUM that may be more comprehensive than the one presented here.

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